Remarks

Currently Claims 1-3, 7, 14, 17-21, 23, 25-30 and 43-44 are pending.

The specification has been amended to correct an obvious clerical error on page 5 from subscript (R_2) to superscript (R^2).

Claims 4-6, 8-13, 15-16, 22, 24 and 46 are cancelled without prejudice. Applicants expressly reserve the right to file one or more continuation applications directed toward the subject matter of the cancelled claims. A continuation directed toward the subject matter of claim 46 has been filed.

Claims 1, 14, 18, 20, 25, 27 and 43 are amended herein. These claim amendments are made solely for the purpose of expediting allowance of the now claimed subject matter, and do not represent any acknowledgement by Applicants of the propriety of the outstanding rejections, which are expressly traversed below. Applicants expressly reserve the right to file continuation applications directed toward the full scope of the original claims. Claim 1 is amended to *inter alia*, incorporate the subject matter of cancelled claims 13-14. Claims 14, 20 and 43 are amended consistent with claim 1. Claim 18 is amended to be consistent with formula (ii) in claim 1. Claims 25 and 27 are amended to recite "human". Support for these amendments can be found throughout Applicants' original specification, including the claims as originally filed, page 15, lines 6-8; page 17, lines 29-30; page 18, lines 14-15 and 28; page 19, lines 2 and 9-16; page 20, lines 4, 16, and 20; page 21, lines 1-4; page 21, line 9; page 23, lines 19-30; page 30, lines 26-27 and the Examples. No new matter is added. Entry of the foregoing amendments is respectfully requested.

Restriction Requirement and Objection of Claims 1-21, 23 and 43

Following the foregoing amendment, claims 1-3, 7, 14, 17-21, 23, 25, 26-30 and 43 remain generic to the elected species.

Applicants understand the Examiner to have withdrawn from consideration all additional subject matter beyond the elected species because no Markush claim was allowable. Applicants respectfully submit that this is incorrect. Claim 20 is a Markush type claim which recites "A compound selected from the group consisting of..." Claim 20 is not currently rejected. Claim 20 is therefore, a generic claim which

is allowable. Pursuant to the mandates of MPEP 803.02 as quoted by the Examiner, "Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all of the limitations of the allowable generic claim as provided by 37 CFR 1.141." Accordingly, the objection of claim 20 as including non-elected subject matter and the failure to consider the additional species of claim 20 was improper. Withdrawal of this objection and consideration of the subject matter of the generic claims is respectfully requested.

Section 112, First Paragraph Rejections Overcome

I. Written Description

Claims 1-19, 21, 23 and 43 currently stand rejected under 35 U.S.C. §112, first paragraph, the Office Action stating that the claims fail to comply with the written description requirement. Applicants respectfully maintain the traversal of this rejection, for the reasons set forth in the prior response.

Written description for a chemical genus may be satisfied through 1) sufficient description of a representative number of species by actual reduction to practice, **or** 2) reduction to drawing, or by disclosure of relevant identifying characteristics, e.g., structure or other physical and/or chemical properties, 3) by functional characteristics coupled with a known or disclosed correlation between function and structure, **or** 4) by a combination of such identifying characteristics. MPEP 2163(II)(A)(3)(a)(ii), pg 2100-182.

The Examiner's rationale disregards the second of the foregoing recited means for demonstrating possession of the invention –reduction to drawing or disclosure of chemical structure. Instead, the Examiner holds the Applicant to the standard of demonstrating actual reduction to practice of every embodiment of the invention. "It is maintained that support for the claimed genus must be in form of representative species." Office Action page 6. This is not the correct standard for Written Description.

A generic formula is normally adequate in chemical cases to meet written description for the claimed genus, because one skilled in the art can visualize many of the species that the claims encompass. *University of California v. Eli Lilly & Co.*, 43

USPQ2d 1398, 1406 (Fed. Cir. 1997) (distinguishing claims to genetic material by name from claims to compounds defined by a generic structural formula). The reduction of the invention to the drawing of the structural formula clearly gives one skilled in the art the ability to visualize many of the species encompassed by the generic formula. This is why the MPEP notes that reduction to drawing or disclosure of chemical structure is one method of satisfying the written description requirement. The claimed invention has been reduced to drawing, including drawings of various substructures, with clear definitions of terms used to describe the elements of the chemical structure. Accordingly, the specification satisfies the written description requirement of section 112 and withdrawal of this rejection is respectfully requested.

The Examiner has cited no case law holding that disclosure of a chemical structure is insufficient to meet the written description requirement for the disclosed generic structure and scope. These are the facts of this case. Both the original claimed genus and that of the amended claims find clear written description support in the application by virtue of the reduction to drawings, including substructures and definitions of variables and terms. Applicants have searched federal court and BPAI decisions for any legal support for the rejection and have found no case law which would support the rejection on the instant facts.

The Examiner is also requested to note that the Written Description Training Materials issued by the PTO in April of this year also fail to support the rejection of the instantly pending claims. Example 15 of the training materials is entitled "Genus with Widely Varying Species". The generic claim of that fact pattern is not a chemical structure with varied substituents, as in the instant case, but rather it is "An isolated nucleic acid comprising a nucleic acid sequence encoding a mammalian Squeaker protein." The claim includes no disclosure of the structure or drawing. The Examiner is requested to note the absence in the training materials of any example wherein a defined chemical structure fails to satisfy the written description requirement of section 112. Withdrawal of this rejection is respectfully requested.

II. Enablement

Claims 1-19, 21, 23 and 43 currently stand rejected under 35 U.S.C. §112, first paragraph, the Office Action stating that the specification fails to enable those compounds identified in the prior rejection as lacking adequate written description.

Applicants respectfully maintain the traversal of this rejection. The Analysis of the Wands' factors was set forth in the prior response and will not be repeated here for the sake of brevity. Applicants maintain their position on the Wands' factor analysis.

The Office Action relies heavily on the Cheung, Gordon Conference Publication as support that the art is wholly unpredictable and therefore the scope of the claims is not sufficiently enabled by the specification. For purposes of establishing a record for appeal, the Cheung publication was dated 22-27 July 2007. The priority date of the instant application is 8 August 2002. The international filing date of the instant application is 4 August 2003. Thus, the Cheung publication is dated nearly 5 years after the priority application and nearly 4 years after the filing date of the PCT application. The Cheung publication also represents the inventor's own work and therefore cannot be an appropriate measure of the ordinary level of skill at the time the invention was made.

The Office Action also appears to draw the conclusion from the Cheung publication that compounds within the scope of the claimed genus would not possess PLK inhibition activity, yet there is in fact no statement or suggestion in the Cheung publication to this effect. The Cheung publication discloses information for optimizing the properties of compounds, but no where does it indicate that structurally similar compounds within the scope of the claimed genus cannot be used in a manner consistent with the disclosure in the specification. Applicants are not required to limit their claims to those compounds which possess optimal properties for further development. *See*, MPEP 2107.03.

Based on the exemplified compounds and activity data provided in the application there is no reasonable basis for one skilled in the art to doubt that the full scope of the claimed compounds could be used as described in the application. Applicants have demonstrated that compounds possessing a variety of substituents at both Q^1 and Q^2 possess activity in the *in vitro* enzyme and/or cell inhibition assays described in the application. For example, one skilled in the art can see from these examples that compounds possessing any of a phenyl, furanyl, thienyl, benzodioxanyl, pyridinyl, cyclohexyl, pyranyl, morpholinyl, and piperdinyl in Ring A of Q^1 all demonstrated activity. One skilled in the art can see tolerance for a variety of Y^1 groups by noting that compounds wherein Y^1 is for example, –O-, -N(R)-, and

$-OS(O)_2-$, possess activity. Based on the activity data provided in the application, there is no reason for one skilled in the art to conclude that compounds possessing the benzimidazole thiophene configuration depicted in the structure of formula (I) could not be used as described in the application.

To the extent that the Examiner finds the inventor's research after the filing of this application persuasive, the Examiner is respectfully requested to examine the structural diversity and activity data provided in the following pending patent applications, all of which include the benzimidazole thiophene described in formula (I):

USSN 11/467577, filed 28 Aug 2006
USSN 12/065684, filed28 Aug 2006
USSN 11/754653, filed 29 May 2007 and
PCT Publication No. WO2007/143506, filed 2 Jun 2007.

It is respectfully submitted that the structural diversity and activity reported in the foregoing applications further supports the conclusion that one skilled in the art would not, based on the instant application or the Cheung publication, have reason to doubt that the full scope of the claimed compounds could be used in the same manner as described in the application.

The methods for using the claimed compounds for treatment of a condition in a human are the same for all claimed compounds. The compounds are used for treatment of a human, according to the invention, by administering the compound to a human in need thereof. The Examiner is reminded that the claims have not been rejected for lack of utility and that the how to use element of section 112, is not a surrogate for the utility requirement. MPEP 2164.07

Section 112 enablement does not require Applicants to prove the safety, efficacy, etc the claimed compounds. Section 112, requires Applicants to teach how, such compounds can be used in the methods of treatment disclosed –in this case, that is, how such compounds may be administered to a human in need thereof.

> "If a statement of utility in the specification contains within it a connotation of how to use, and/or the art recognizes that standard modes of administration ore known and contemplated, 35 U.S.C. 112 is satisfied. *In re Johnson*, 127 USPQ 216, 219 (CCPA 1960); *In re Hitchings*, 144 USPQ 637, 643 (CCPA

1965), [and] *In re Brana* 34 USPQ2d 1437, 1441 (Fed Cir 1993)." MPEP2164.01(c).

Applicants have in fact taught how to use the claimed compounds because they have taught how to administer such compounds to a human in need thereof. Specifically, the disclosure describes how to formulate a compound of formula (I) into a pharmaceutical formulation and a variety of administration routes for achieving administration to a human (see, pages 34-40); which dosages should be administered (see, pages 31-32); and methods of use for the claimed compounds together with other therapeutic agents (see, pages 40-48). Regardless of the specific claimed compounds being used, the method of use that must be and has been taught is the same –administering the compound to a human in need thereof. Even if this teaching were not present, the specification would be enabling for how to use the claimed invention because one skilled in the art could obtain such information without undue experimentation since anti-cancer agents are known in the art. Accordingly, it is respectfully submitted that Applicants disclosure is enabling for the full scope of the invention and withdrawal of this rejection is requested.

Section 103(a) Rejection Moot

Claims 1, 8, 15, 16, 18, 19, 21, and 23 currently stand rejected under 35 U.S.C. §103(a), the Office Action stating that the claims are obvious over Palmer et al., *J. Med. Chem.* 1998 **41**:5457-5465 (Palmer).

While Applicants respectfully traverse this rejection, the rejection is moot in view of the amendment to the claims. Palmer neither discloses nor suggests compounds wherein the thiophene is substituted by Applicants claimed group Q^1.

Applicants respectfully submit that the instant application is in condition for allowance, which action is respectfully requested. The Examiner is invited to contact the undersigned at (919) 483-8222, to discuss this case, if desired.

Respectfully submitted,

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